



RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/086,510

DATE: 03/19/2002
TIME: 15:08:45

Input Set : A:\50549-20001.20txt.txt
Output Set: N:\CRF3\03192002\J086510.raw

4 <110> APPLICANT: Fang-Tseh (Frank) CHANG et al.
6 <120> TITLE OF INVENTION: METHODS AND COMPOSITIONS FOR PEARL
7 OYSTER CULTIVATION
9 <130> FILE REFERENCE: 505493000120
C--> 11 <140> CURRENT APPLICATION NUMBER: US/10/086,510
C--> 12 <141> CURRENT FILING DATE: 2002-02-27
14 <150> PRIOR APPLICATION NUMBER: 60/310,070
15 <151> PRIOR FILING DATE: 2001-08-02
17 <160> NUMBER OF SEQ ID NOS: 6
19 <170> SOFTWARE: FastSEQ for Windows Version 4.0
21 <210> SEQ ID NO: 1
22 <211> LENGTH: 2050
23 <212> TYPE: DNA
24 <213> ORGANISM: Pinctada margaritifera
26 <400> SEQUENCE: 1

27 ggcatttcaa aacttacaag agagagatac agtaaatgtg gagaatgacg acacttcttc 60
28 acttgactcc tctgcttgg ttctgattccat tatgtcatgg tgccctccatg cacaggcatg 120
29 accattatggat ggacatggat aaaacctacc gtaatcgatg gggaaactgt cattattcag 180
30 gggaaatgtt ctgtgacgccc gggtttagct acaataggaa acaaaaatgag gaacaatgcc 240
31 acggtccgta tgactggcac actatatcta gttgctttaa ggcatgtgga agtaaagaga 300
32 gacaatcacc aatcaacatt tggcacata gagcccttt ccgaaaaactg ccaagactga 360
33 aattcaagcc acatatgaaa tcattggata cggaaatgttc aaatcaccaa aatcatgccc 420
34 ctgaattcga ttcagaggac gaaaaacttc atgtttaact gaagaatctt gttgatggac 480
35 attataaatt ccgcaatctc catattcaca ttggcaaaag tagacgaaag ggctccgaac 540
36 acagcgttga cagacatttt acacctatgg aggctcattt agtggccgt catgtgaga 600
37 aaaaggaaat caaacctcct aggatttgg taggaagaaa tttcagtgga attaatgaat 660
38 ttgttgcgt tgggtttt cttagagggtt gtgatgaaagg atacgggtat gaaccggacg 720
39 acgatgaatg taagcgcata ttaaagggtc attacgatca ttgcgacaac aatggagaca 780
40 acggctacaa ctgtgataac ggcaacaatg gaaacaacgg aaacaatggt aatggtaaca 840
41 acggttataa cggtaacaac ggttataacg gtaataacgg tgacaatggc aacagtggaa 900
42 acaatggtaa tggtaacaac ggttataacg gtaacaacgg ttataacggt aataacggtg 960
43 acaatggcaa cagcggaaac aatggtaatg gtaacaacgg ttataacggt aataacggtg 1020
44 gcaacggaaa caacagaaac aatggcaatg gtaacaacgg aaacaatggt aatgataaca 1080
45 acaatggcaa caacggaaaac aatggtaatg gtaacaacgg aaacaatggt aatggaaaca 1140
46 acggaaataa tggtaatggt aacaacggaa ataacggtg caatggcaac aatggaaaca 1200
47 atggtaatgg taacaacggaa aataatggta atggtaacaa cggaaataat gtaatggta 1260
48 acaacggaaa taacgggtgc aatggcaaca atggtaatgg taacaatggaa aataatggta 1320
49 acggtgacta cggtagtaat ggttataacg gtgataatgg taacagtgc gggcgactca 1380
50 ataacggtaa tggcgacaat ggttataacg gtgataatgg taacagtgc gggcgactca 1440
51 gacgttggaa cttggaaaat gtccgacgca tgcataccga gcgatatcac ttcagcagaa 1500
52 gatgtattgt caaaaaagca aaacgcctca gcaggattct cgaatgcgca tatagacaca 1560
53 aaaaaagtca agaattcaaa aggaatggag aacacaaagg tcttgcgtt gaaattacac 1620
54 cggaaatggt tttaccgcca ataaagtaca gacaatacta tacctatgaa ggttgcgtt 1680

RECEIVED

MAR 27 2002

TECH CENTER 1600 2002

Input Set : A:\50549-20001.20txt.txt
Output Set: N:\CRF3\03192002\J086510.raw

55	caacccctcc ttgcgatgag accgtccttt gggtaga aaaatgccac gtgcaagtat	1740
56	ccagaagggt gctttagatgca ttgcggaaacg ttgaaggata tgaggatggt accacgctga	1800
57	gcaagtatgg aactagacgt cccacacaga gaaacataaa accttaact gtgtacaaaa	1860
58	acttcatatg atcgaactca ttttctgttc cagtcgtt aaggaacaaa tgtaaataat	1920
59	gtcacgattc gcacaatgta caatatatct gttctgcac atcatatgaa gcatactcta	1980
60	atgtaaaaact gttaaaaatg atgcaataaa tatgttttt taaaaaaaaaaaaaaa	2040
61	aaaaaaaaaaa	2050
63	<210> SEQ ID NO: 2	
64	<211> LENGTH: 1811	
65	<212> TYPE: DNA	
66	<213> ORGANISM: Pinctada maxima	
68	<400> SEQUENCE: 2	
69	aatgtggaga atgacgacgc ttcttcactt gactgctctg cttgttctga ttccattatg	60
70	tcattgcgc tccatgcaca ggcacatgacca ttatatggac atggatcaaa cctaccctaa	120
71	tggattggga tactgtgaac ctgcaggtaa aagcagctgt aaagccggat ttagctacaa	180
72	tagagacata tgccaagggtc cgtatcattt gcacactata tctagttgtc ataaggcatg	240
73	tggacataaa aggagacaaat caccaatcaa catttggtaa cataaagctg tatttttacc	300
74	ttatctgccaa agactgaaat tcaagccaca tatgaagtca ttggatacgg acgtgacaaa	360
75	tcacccaaat cgtccccctg aattcgagcc ggaggacgga gataagcttc atgtgaaact	420
76	aaagaatctt gttgatggac attataaatt tcacaatctc catattcaca acggccaaag	480
77	tagacgaaag ggctcggaaac acagcgtgaa cagacattt acgccccatgg aggctcattt	540
78	ggtgttccat catgatgata aaaaggaaat caaacctcca agggtaagt tagggggagt	600
79	gtacgctggc cgtaacaaat ttgttgcgt tggagtctt ctagaggtgg gtgatgaagg	660
80	atacggtgat gaaccggacg acgatgaatg taagcgcata taaaagggtc attgcgagaa	720
81	caatggggac aatggtaaca actgtgataa cggcaacaat ggtacacaacg acaacaatgg	780
82	taacaacgga aacaatggta atggtaacaa cggttataac ggtacacaacg gtgacaatgg	840
83	aaacaatggc aatggtaatg gtaacaacgg ttataacggt aataacgggt acaatggcaa	900
84	caatggaaac aatggtaatg gtaacaatga caataatggt aacgataaca acggaaataa	960
85	cgggtggcaat ggtacacaacg gaaacaatgg taatggtaac aatggaaata atggtaatgg	1020
86	taataacgga aataacgggt gcaatggcaa caacggaaac aatggtaata gtaacaacgg	1080
87	aaataatggt aatggtaaca acggaaataa cgggtggcaat ggcaacacaacg gaaacaatgg	1140
88	taatggtaac aatggaaata atggtaacgg tagtaatggt aacaatggtg gaaacggcaa	1200
89	caatggtaat aacgggtgata acggtaatgg cgacaatggt tataacgggt ataatggtaa	1260
90	cagtgacggg cgactcagac gctgggattt ggcaaatgtc cgacgcattgc acgcccggcg	1320
91	atatcactt agcggaggat gtatcgtaa aaaagctaaa cgcctcagca ggattcttga	1380
92	atgcgcataat agacacaaaaa aagtcaagaga attcaaaagg aatggagaag aaaaaggct	1440
93	tgtatgttattt attacaccgg aaatggttt accgccaatg aaatacagac attactatac	1500
94	ttatgaagga tctttgacaa cccctccttcaatgagacc gtcctttggg ttgttggaaaa	1560
95	atgccacgtg caagtatcca gaagggtgt tgatgcattt cggaaacgtcg aaggatatga	1620
96	agatggtacc acgctgagca agtatggaaac cagacgtccc acacaaagaa acaagcatcc	1680
97	tctacgtgtg tacaaaaact ccatataatg atcatggcga gagaatgacg acgcttcttc	1740
98	acttgactgc tctgcctcct ccccccccccc cccccccggcc atatggccac tctgcgttga	1800
99	taccactgct t	1811
101	<210> SEQ ID NO: 3	
102	<211> LENGTH: 2363	
103	<212> TYPE: DNA	
104	<213> ORGANISM: Pinctada fucata	
106	<400> SEQUENCE: 3	
107	tagtaatgt gaagattgggt gatgtatctt catttgactg ccctatgtgt tggttattccg	60

Input Set : A:\50549-20001.20txt.txt
Output Set: N:\CRF3\03192002\J086510.raw

108	ctgtttatg	gcccctccat	gtttaaacat	gaccactaca	tggacaatgg	tgtgaggat	120											
109	cctaattggtg	acggaatctg	taaacaattg	aatgaaacca	aatgtgatgc	agggttttagc	180											
110	tatgatagga	gtatatgtga	aggcctcat	tattggcaca	ccatatcgaa	atgcttcatt	240											
111	gcatgtggaa	ttggacagag	acaatctcca	atcaacatcg	tttcttatga	tgctaaattt	300											
112	cgtcagcggt	tgccaaaatt	gaaattcaag	ccacatatgg	agaaattaaa	aacagaagtg	360											
113	accaatcatc	agaaccgagc	tccagagttc	gagccagagg	atggggaaaa	tctgtacgt	420											
114	aagctaaata	acctagtgg	cggtcattat	aaattccata	atcttcacgt	tcataatgg	480											
115	agaaccagac	gtaagggatc	agaacacagt	gttaacggtc	gtttcacacc	tatggaggct	540											
116	catttggttt	tccatcatga	tgtcaaaaca	cactttgaac	ctacacgcac	taagctggga	600											
117	ggagcattcc	ctggtcataa	cgattttgtc	gtcggtggag	tttttcttga	ggtcggagat	660											
118	gacggctttg	gacgacgaacc	ggtgacgaa	gaatgtaaac	acatcttaaa	gggacatcac	720											
119	cctgataata	acgagaacgg	caatggagac	aatggcaata	acggctacaa	tggggacaac	780											
120	ggtaacaatg	gtgacaacgg	caataacagc	tacaatgggg	acaacggtaa	caatgggtgc	840											
121	aacggcaata	acggctacaa	tgggacaac	ggtaacaatg	gagacaacgg	caataacggc	900											
122	tacaatgggg	acaacggtaa	caatggtgc	aacggcaata	acggtgaaaa	cggcaataac	960											
123	ggtgaaaacg	gcaataacgg	tgaaaatgg	cacaaacacg	gatgtcggt	aaagaaaagca	1020											
124	aagcatctca	gtaggatcct	ggaatgtgct	tatagaaaacg	ataaggtcag	agagttcaag	1080											
125	aaagttggag	aagaggaagg	gttagatgtt	catctaacac	cggagatggc	tttgcgcgcca	1140											
126	ctgaagtaca	gacattacta	tacatacgg	ggatccctga	ccactcccc	gtgtacagag	1200											
127	tctgtcctct	gggttgttca	aaaatgccat	gtgcaggtgt	caagaagggt	tcttcatgca	1260											
128	ttacgaaatg	ttgaaggata	taaagatgg	accacactaa	gaaagtatgg	aactagacgt	1320											
129	ccaaacgcaaa	agaataaaagt	tactgtgtac	aaaagcttca	aatagttgac	atagttttg	1380											
130	ttctttcct	tatagagaca	tgtaacacag	ccaattatgt	ttcatatgt	atccatgtaa	1440											
131	aatacaggat	ctttacataa	atattcatgt	gaaacaagca	cgaacattaa	aggactaggt	1500											
132	gcgctaacc	cttatatcgg	ccctataatt	tcgacgagaa	atgctttaa	taaacaact	1560											
133	attaattata	gcttttgca	atgttgaatg	tttgagaaaa	tacccatca	tattttttag	1620											
134	ccctcgtaac	gtcacgcgag	tgtatgtatg	tgtcatgttc	tgaaagtcat	ttgcctgaa	1680											
135	tgacgcaaaa	caaattgagaa	tcatcgatt	ttacatacaa	atcttcaa	tcatctgcga	1740											
136	ttcaggcctc	gaacacgata	tttttatgc	aaatttaag	gccgatcaa	aatccatcga	1800											
137	tttagtacaaa	tattatcg	ggcaattaag	gcctggaacg	atacttaatt	tcataaattt	1860											
138	taatcgaaat	ttcgctgatt	tattgatatt	ttcaatgagt	ttcaacgtt	tagacatttt	1920											
139	tttgtatat	tcatgtatgg	actatgaaat	caaaaaaaagc	ttccctgata	tggattcacc	1980											
140	atacattaa	catttcaaaa	actagaatat	tatggatata	tgaacaactt	tgaaaatggg	2040											
141	gccgatatgg	caggttaccg	aacctacttc	tttttatcaa	atttttaca	tgaaattcat	2100											
142	ggaaagttc	cgacatcaat	ttcatgtgaa	ttcttatatcg	catgaaggtc	acaaagaaaa	2160											
143	tttcatgtaa	aattcatgcg	aaggaaattc	atgtgaaact	catgtgaaat	atttttcaca	2220											
144	taaatctaa	gtgaaaagta	tataaatttc	acaactttca	tgtgaaattt	aagtgtatgt	2280											
145	cattttgtat	ggatttcatg	tgaggcataa	ttgactgctt	gtactatgt	attagaacaa	2340											
146	aatgtcaa	attnaataaa	tga				2363											
148	<210>	SEQ ID NO:	4															
149	<211>	LENGTH:	611															
150	<212>	TYPE:	PRT															
151	<213>	ORGANISM:	Pinctada margaritifera															
153	<400>	SEQUENCE:	4															
154	Met	Trp	Arg	Met	Thr	Thr	Leu	Leu	His	Leu	Thr	Pro	Leu	Leu	Val	Leu		
155	1				5				10						15			
156	Ile	Pro	Leu	Cys	His	Cys	Ala	Ser	Met	His	Arg	His	Asp	His	Tyr	Met		
157									20				25		30			
158	Asp	Met	Asp	Lys	Thr	Tyr	Arg	Asn	Arg	Trp	Gly	Asn	Cys	His	Tyr	Ser		

Input Set : A:\50549-20001.20txt.txt
Output Set: N:\CRF3\03192002\J086510.raw

159 35 40 45
160 Gly Gly Ser Ser Cys Asp Ala Gly Phe Ser Tyr Asn Arg Glu Gln Asn
161 50 55 60
162 Glu Glu Gln Cys His Gly Pro Tyr Asp Trp His Thr Ile Ser Ser Cys
163 65 70 75 80
164 Phe Lys Ala Cys Gly Ser Lys Glu Arg Gln Ser Pro Ile Asn Ile Trp
165 85 90 95
166 Ser His Arg Ala Leu Phe Arg Lys Leu Pro Arg Leu Lys Phe Lys Pro
167 100 105 110
168 His Met Lys Ser Leu Asp Thr Lys Val Ser Asn His Gln Asn His Ala
169 115 120 125
170 Pro Glu Phe Asp Ser Glu Asp Glu Lys Leu His Val Lys Leu Lys Asn
171 130 135 140
172 Leu Val Asp Gly His Tyr Lys Phe Arg Asn Leu His Ile His Ile Gly
173 145 150 155 160
174 Lys Ser Arg Arg Lys Gly Ser Glu His Ser Val Asp Arg His Phe Thr
175 165 170 175
176 Pro Met Glu Ala His Leu Val Phe Arg His Asp Glu Lys Lys Glu Ile
177 180 185 190
178 Lys Pro Pro Arg Ile Trp Leu Gly Arg Asn Phe Ser Gly Ile Asn Glu
179 195 200 205
180 Phe Val Val Val Gly Val Phe Leu Glu Val Gly Asp Glu Gly Tyr Gly
181 210 215 220
182 Asp Glu Pro Asp Asp Asp Glu Cys Lys Arg Ile Leu Lys Gly His Tyr
183 225 230 235 240
184 Asp His Cys Asp Asn Asn Gly Asp Asn Gly Tyr Asn Cys Asp Asn GLY
185 245 250 255
186 Asn Asn Gly Asn Asn Gly Asn Asn Gly Asn Asn Gly Tyr Asn
187 260 265 270
188 Gly Asn Asn Gly Tyr Asn Gly Asn Asn Gly Asp Asn Gly Asn Ser Gly
189 275 280 285
190 Asn Asn Gly Asn Asn Gly Tyr Asn Gly Asn Asn Gly Tyr Asn
191 290 295 300
192 Gly Asn Asn Gly Asp Asn Gly Asn Ser Gly Asn Asn Gly Asn Gly Asn
193 305 310 315 320
194 Asn Gly Tyr Asn Gly Asn Asn Gly Gly Asn Gly Asn Asn Arg Asn Asn
195 325 330 335
196 Gly Asn Gly Asn Asn Gly Tyr Asn Gly Asn Asn Gly Asp Asn Gly Asn
197 340 345 350
198 Asn Gly Asn Asn Gly Asn Asn Gly Asn Asn Gly Asn Asn Asp Asn
199 355 360 365
200 Asn Gly Asn Asn Gly Asn Asn Gly Asn Asn Gly Asn Gly Asn Gly
201 370 375 380
202 Asn Asn Gly Asn Asn Gly Asn Asn Gly Asn Asn Gly Asn Gly Asn Gly
203 385 390 395 400
204 Asn Asn Gly Asn Asn Gly Asn Asn Gly Asn Asn Gly Asn Gly Asn
205 405 410 415
206 Gly Asn Asn Gly Asn Asn Gly Asn Asn Gly Asn Gly Asp Tyr
207 420 425 430

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/086,510

DATE: 03/19/2002
TIME: 15:08:45

Input Set : A:\50549-20001.20txt.txt
Output Set: N:\CRF3\03192002\J086510.raw

208 Gly Ser Asn Gly Asn Asn Gly Gly Asn Gly Asn Asn Gly
209 435 440 445
210 Asp Asn Gly Asn Gly Asp Asn Gly Tyr Asn Gly Asp Asn Gly Asn Ser
211 450 455 460
212 Asp Gly Arg Leu Arg Arg Trp Asp Leu Glu Asn Val Arg Arg Met His
213 465 470 475 480
214 Thr Glu Arg Tyr His Phe Ser Arg Arg Cys Ile Val Lys Lys Ala Lys
215 485 490 495
216 Arg Leu Ser Arg Ile Leu Glu Cys Ala Tyr Arg His Lys Lys Val Arg
217 500 505 510
218 Glu Phe Lys Arg Asn Gly Glu His Lys Gly Leu Asp Val Glu Ile Thr
219 515 520 525
220 Pro Glu Met Val Leu Pro Pro Ile Lys Tyr Arg Gln Tyr Tyr Thr Tyr
221 530 535 540
222 Glu Gly Ser Leu Thr Thr Pro Pro Cys Asp Glu Thr Val Leu Trp Val
223 545 550 555 560
224 Val Glu Lys Cys His Val Gln Val Ser Arg Arg Val Leu Asp Ala Leu
225 565 570 575
226 Arg Asn Val Glu Gly Tyr Glu Asp Gly Thr Thr Leu Ser Lys Tyr Gly
227 580 585 590
228 Thr Arg Arg Pro Thr Gln Arg Asn Ile Lys Pro Leu Thr Val Tyr Lys
229 595 600 605
230 Asn Phe Ile
231 610
233 <210> SEQ ID NO: 5
234 <211> LENGTH: 568
235 <212> TYPE: PRT
236 <213> ORGANISM: Pinctada maxima
238 <400> SEQUENCE: 5
239 Met Trp Arg Met Thr Thr Leu Leu His Leu Thr Ala Leu Leu Val Leu
240 1 5 10 15
241 Ile Pro Leu Cys His Cys Ala Ser Met His Arg His Asp His Tyr Met
242 20 25 30
243 Asp Met Asp Gln Thr Tyr Pro Asn Gly Leu Gly Tyr Cys Glu Pro Ser
244 35 40 45
245 Gly Glu Ser Ser Cys Lys Ala Gly Phe Ser Tyr Asn Arg Asp Ile Cys
246 50 55 60
247 Gln Gly Pro Tyr His Trp His Thr Ile Ser Ser Cys Tyr Lys Ala Cys
248 65 70 75 80
249 Gly His Lys Arg Arg Gln Ser Pro Ile Asn Ile Trp Ser His Lys Ala
250 85 90 95
251 Val Phe Leu Pro Tyr Leu Pro Arg Leu Lys Phe Lys Pro His Met Lys
252 100 105 110
253 Ser Leu Asp Thr Asp Val Thr Asn His Gln Asn Arg Ala Pro Glu Phe
254 115 120 125
255 Glu Pro Glu Asp Gly Asp Lys Leu His Val Lys Leu Lys Asn Leu Val
256 130 135 140
257 Asp Gly His Tyr Lys Phe His Asn Leu His Ile His Asn Gly Lys Ser
258 145 150 155 160

VERIFICATION SUMMARY
PATENT APPLICATION: US/10/086,510

DATE: 03/19/2002
TIME: 15:08:46

Input Set : A:\50549-20001.20txt.txt
Output Set: N:\CRF3\03192002\J086510.raw

L:11 M:270 C: Current Application Number differs, Replaced Current Application Number
L:12 M:271 C: Current Filing Date differs, Replaced Current Filing Date